

REMARKS

Appreciation is hereby expressed to Examiner Robinson for the interview so courteously conducted on May 18, 2004. Pursuant to that interview, claim 1 has been amended to more definitely set forth the invention and obviate the rejection. Support for the amendment of Claim 1 can be found in the Specification in Figures 1-3. The present amendment is deemed not to introduce new matter. Claims 1-3 are in the application.

Reconsideration is respectfully requested of the rejection of Claims 1 and 3 under 35 U.S.C. § 102(b) as being anticipated by Siersch 9408066.

When using a medical stereomicroscope for dental examination or treatment, the observation target is frequently a tooth or a root canal, both of which are generally ruggedly shaped. Therefore, adequate brightness and field depth are required for obtaining a clear visual field. Particularly, when the observation target has varying heights within a narrow field, a lower portion thereof would be shadowed by a higher portion. To adequately observe the observation target for treatment, such shadows should be minimized and/or maximized as much as possible, to enable a user to adequately perceive the depth and texture of an observation target (Specification, page 1, lines 12-20).

In some prior art inclined illuminator type microscopes, the optical axis for the observation optical system and the optical axis of the illumination optical system form a large angle. In such cases, the optical axis of the illumination system will be in a position forming a large angle with respect to the surface of the observation object, thus resulting in the creation of a large shadow upon an uneven portion (e.g., root canal) of the observation target when the optical

axis of the observation optical system is positioned perpendicular to the surface of the observation target (Specification, page 3, lines 5-11).

The present inventors unexpectedly discovered that, in the inclined illuminator type binocular stereomicroscope called for in the claims herein, by disposing a group plural lenses including right and left secondary objective lenses 1b disposed closest to the observation target 4 and a prism 1c, and a zooming-type magnification changing portion 5 between the secondary objective lenses 1b and the prism 1c (Specification, page 6, lines 27-29; page 7, lines 1-3, and Fig. 1), that the creation of undesirable shadows could be avoided, and the creation of shadows when desired could be obtained.

In particular, to achieve the unexpected result described above, the inclined illuminator type binocular stereomicroscope of the present invention is provided ONLY with a single illumination optical system having an illumination unit for illuminating an object targeted for observation (Fig. 1). Further, the illumination unit is disposed "in close proximity to the observation optical system of the binocular microscope, by arranging the plane as including the prescribed lenses of the objective lenses of the observation optical systems positioned closer to the observation target, by disposing the optical lens of the illumination unit inside the circle on the plane where the line connecting the optical axes of the right and left observation optical systems serves as the diameter of the circle, and by coinciding the optical axis of the observation optical system and the optical axis of the illumination unit at the surface of the observation target" (Specification, page 4, lines 12-19).

Put more simply, as shown in Figures 1 and 3 (and as described on page 9, second

paragraph), in contrast to the prior art devices as shown in Figure 4, the illumination unit herein is disposed relatively parallel and in close proximity to the objective lenses of the optical system, such that the axes thereof meet within a predefined circle 9, and so that the optical axis 2a (the axis of the illumination unit) will coincide with the optical axis 1a (the axis of an optical unit) at the observation target surface 4a when the optical axis 1a of the observation optical system 1 coincides with the observation target surface 4a of the observation target 4 to form a focal point. This positioning of a **SINGLE** illumination system relative to the optical system serves to illuminate the observation target relatively directly (i.e., relatively perpendicular to the plane of the target object) in relation to the optical system, thereby minimizing any perceptible shadows on the observation target which may hinder the viewing thereof by the user, or allowing the user to create shadows to adequately perceive the surface of the observation target.

Furthermore, as illustrated in Figures 1 and 3 herein, the light created by the illumination unit of the present invention is not reflected/directed from a straight path by any lenses or prisms (Specification, page 9, fifth paragraph). Claim 1 herein has been amended to now include BOTH of these distinguishing characteristics, i.e., the single illumination system and the perpendicular path of illumination relative to the plane of the target object. In particular, claim 1 has been amended to now include the closed-ended term "consisting" which, in view of the amendments herein, limits claims 1 to ONLY a single illumination system.

It is believed that none of the inclined illuminator type binocular stereomicroscopes disclosed in the Siersch reference contain all of the features now called for in the claims herein. For example, the stereomicroscope shown in Fig. 1 of Siersch, while containing a single

illumination optical system, fails to disclose the use of either a stereomicroscope used for dental treatment or an illumination system which has an optical axis arranged inside a circle which has a diameter connecting the optical axis of the right and left observation optical system. Although this latter feature is shown in Fig. 3 of Siersch, there is no disclosure that the device used in Fig. 3 has a single illumination optical system, nor is there any disclosure that this device could be used for dental treatment.

Moreover, the stereomicroscope shown in Fig. 4 of Siersch also fails to use a single illumination optical system as now called for in the claims herein, and there is no disclosure that this stereomicroscope could be used for dental treatments. It is therefore respectfully submitted that none of the embodiments shown in Figs. 1, 3 and 4 of Siersch have all of the features as now called for in the claims herein. For this reason, it is respectfully submitted that the Siersch reference fails to anticipate or render unpatentably obvious the subject matter now called for in Claims 1 and 3 herein. Consequently, the Examiner would be justified in no longer maintaining the rejection. Withdrawal of the rejection is accordingly respectfully requested.

Reconsideration is respectfully requested of the rejection of Claims 1-3 under 35 U.S.C. 102(b) as being anticipated by Buhler, USP 3,909,106.

The Buhler reference, like the Siersch reference discussed above, is believed to fail to disclose all of the features now called for in the amended claims herein. In particular, it is believed that the Buhler reference fails to disclose the limitation of a SINGLE illumination optical system having an illumination unit for illuminating an object targeted for observation relatively perpendicular to a plane of the observation target, wherein the illumination unit has an optical axis

arranged inside a circle, the circle having a diameter connecting the optical axes of the right and left observation optical systems in a plane including at least the lenses of the right and left observation optical systems positioned closest to the observation target.

As pointed out above, it is important in the stereomicroscope of the present invention used for dental treatments to avoid the creation of undesirable shadows in a canal-shaped target, or to be able to create desirable shadows to perceive depth and texture, such as in the root canal of a tooth. If a stereomicroscope utilizes plural illumination units, instead of a single illumination optical system as claimed herein, it is very difficult to avoid the creation of shadows on the observation target. Plural illumination deletes shadows on such root or such canal-shaped targets.

As such, it is respectfully submitted that the Buhler reference fails to anticipate or render unpatentably obvious the subject matter now called for in the claims herein. For these reasons, it is believed that the Examiner would be justified in no longer maintaining the rejection. Withdrawal of the rejection is accordingly respectfully requested.

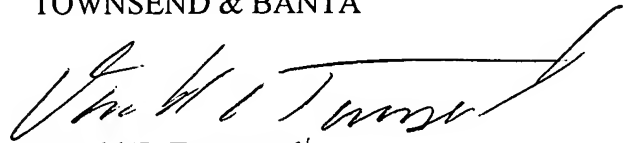
Reconsideration is respectfully requested of the rejection of Claim 2 under 35 U.S.C. § 103(a) as being unpatentable over Siersch.

As pointed out above, the Siersch reference fails to disclose the stereomicroscope as now called for in the amended claims herein. Additionally, it is respectfully submitted that the Siersch reference neither anticipates nor renders unpatentably obvious the subject matter now called for in the claims herein. Consequently, the Examiner would be justified in no longer maintaining the rejection of Claim 2. Withdrawal of the rejection is accordingly respectfully requested.

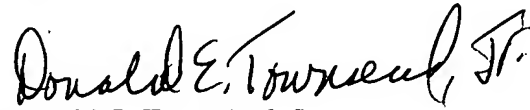
In view of the foregoing, it is respectfully submitted that the application is now in condition for allowance, and early action and allowance thereof is accordingly respectfully requested. In the event there is any reason why the application cannot be allowed at the present time, it is respectfully requested that the Examiner contact the undersigned at the number listed below to resolve any problems.

Respectfully submitted,

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Date: June 7, 2004



DOCKET NO. NAK-020-USA-P

CERTIFICATE OF MAILING

I hereby certify that this Amendment, Transmittal, and 1-month Petition For Extension of Time in Docket No. NAK-060-USA-P, Serial No. 10/026,468, filed December 27, 2001, was deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to:

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

On June 7, 2004

Donald E. Townsend

A handwritten signature in cursive script, appearing to read "Donald E. Townsend", written over a horizontal line.